Views of Breastfeeding in Public among Informally-Working Mothers of Infants under 6 Months in Moshi Urban District, Kilimanjaro Region, Tanzania: A Qualitative Study

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Abstract

Background: Optimal infant feeding practices include exclusive breastfeeding (EBF) for 6 months, which necessitates breastfeeding infants regularly throughout the day. It is a common practice for women working in the informal sector to bring their infants to work with them, which typically requires breastfeeding in public settings. Women's views and feelings towards breastfeeding in public can be a barrier to achieving optimal breastfeeding recommendations.

Objective: To understand the views surrounding breastfeeding in public among mothers working in the informal sector in Moshi Urban District, Kilimanjaro Region, Tanzania.

Methods: In-depth interviews were conducted among 20 women who work in the informal sector, have infants <6 months of age, and were breastfeeding their infants.

Results: Many women reported negative views towards breastfeeding in public, and evil eye, that is, of having someone look at the infant when breastfeeding and cause some sort of affliction, was the most cited concern. Participants described multiple strategies for addressing evil eye. However, not all women reported believing in evil eye or using these strategies, and a few participants appeared to have no major issues with breastfeeding in public. Participants reported multiple strategies for breastfeeding in public, such as moving aside and using coverings.

Conclusion: It is important to create public environments where mothers feel comfortable breastfeeding as well as to counsel mothers on how to breastfeed when outside the home and promote awareness and acceptability of breastfeeding in public to support mothers. Healthcare providers should understand evil eye beliefs and the role they play in infant feeding. Future research should evaluate community views and assess the relationship between mothers' infant feeding practices and their views towards breastfeeding in public.

Introduction

Breastfeeding Recommendations

The World Health Organization recommends that infants initiate breastfeeding within one hour of birth and exclusively breastfeed for the first 6 months for ideal development and growth.[1] Exclusive breastfeeding (EBF) necessitates breastfeeding infants regularly during the day and is defined as solely feeding the infant breastmilk, with no additional liquids or foods.[2,3] It is recommended that mothers begin breastfeeding within 1 hour post-birth and continue to breastfeed on demand, meaning that the infant can feed whenever he/she wants.[2,4] Early initiation of breastfeeding decreases the risk of mortality for the newborn and also helps prevent the infant from developing infections, and infants who are breastfed on demand have been found to achieve better academic results later on in life than infants who are fed according to a schedule.[5,6] Early initiation also benefits the mother by decreasing the likelihood of postpartum hemorrhage, which is a main cause of maternal mortality.[7,8] Exclusive breastfeeding is not only beneficial for the infant by providing adequate nutrients and energy and reducing the risk of gastrointestinal infections, but is also of benefit to the mother, such as by expediting weight loss post-pregnancy.[3] After 6 months of EBF, it is recommended that mothers continue to breastfeed their infants for at least 2 years while introducing appropriate solid foods.[1,3,5] Breastfeeding has multiple benefits for the infant, including reducing the likelihood of becoming overweight or obese later in life and protecting against diarrhea and acute respiratory tract infections, as well as for the mother by decreasing breast and ovarian cancer risks.[5,9] However, in order to achieve optimal breastfeeding recommendations, mothers are in need of support.[5]

It has been estimated that over 800,000 infant lives per year could be saved if breastfeeding practices are improved globally.[10] Additionally, due to the benefits of breastfeeding for the mother, more than 20,000 deaths from breast cancer could be avoided if breastfeeding rates are increased.[10] Nevertheless, despite the life-saving benefits of breastfeeding, as of 2018, only 41% of infants under 6 months of age were exclusively breastfed, falling below the established target of 50% of infants being exclusively breastfed for 6 months by 2025.[11,12] While breastfeeding rates in Tanzania in 2018 were found to be higher, with 57.8% of infants under 6 months of age exclusively breastfed, this percentage in Tanzania has decreased since 2016, when 59% of infants under 6 months were exclusively breastfed.[13,14]

Familial and workplace support, maternal awareness of EBF and its benefits, maternal determination to EBF, and timely initiation of breastfeeding have been identified as facilitators of achieving EBF for 6 months.[15–20] On the other hand, mothers' employment and/or working away from the home, inadequate familial and healthcare worker support, beliefs in the inadequacy of breastmilk, and inadequate prenatal care and breastfeeding knowledge have been identified as barriers to optimal infant feeding practices, among others.[15,16,19,21–32] In Tanzania specifically, multiple challenges and barriers to achieving EBF for 6 months have been identified, including giving the infant gripe water during the first 6 months, the mother's work demands, and inadequate maternal nutrition.[33–35] Additionally, in different settings around the world, refusal, embarrassment, discomfort, stigma, and not being encouraged or supported by society when breastfeeding in public hinder the ability to achieve optimal infant feeding practices.[19,27,32,36–40]

Breastfeeding in Public

Breastfeeding in public is a practice that is learned and dictated by culture and therefore may be seen as normal or as taboo depending on the cultural context.[41–44] Nevertheless, breastfeeding in public continues to be a contended issue around the world, and many women face embarrassment, shame, discomfort, societal unacceptance, and stigma.[27,30,32,37,39,42,43,45,46] Since negative societal views and stigma towards breastfeeding in public are a barrier to accomplishing optimal breastfeeding practices, scholars highlight the importance of establishing encouraging environments to ensure that breastfeeding in public is accepted by society and normalized.[36,37,46–48] In Malaysia, breastfeeding in public has been identified as a social taboo,[42] and refugees from Burundi, the Democratic Republic of Congo, Liberia, and Sierra Leone living in Australia described facing stigma and feeling ashamed when breastfeeding in public.[46] Similarly, in South Africa, breastfeeding in public has previously been described as not being culturally acceptable.[28] On the other hand, in New Zealand, around 75% of respondents were supportive of breastfeeding in public,[49] and similarly, 75% of Canadian respondents acknowledged that mothers can acceptably breastfeed in public, demonstrating how views towards and acceptance of breastfeeding in public can vary across populations.[48] For the purposes of this paper, breastfeeding in public is defined as breastfeeding among a gathering of people and/or in an open or public environment, such as at a market or church.

Not only are societal views of breastfeeding in public an important factor for achieving breastfeeding recommendations, but a woman's own perceptions of and views towards breastfeeding in public are also important, for a mother's breastfeeding attitudes and beliefs are pivotal determinants of her infant feeding practices and can impact her ability to EBF.[19,32,36,37,47,48,50,51] Women's negative views and beliefs surrounding breastfeeding in public have been identified as a barrier to reaching optimal breastfeeding practices.[19,27,37,40,50,51] In South Africa, some mothers' attitudes of breastfeeding in public led them to switch to formula when in a public environment,[19,51] and obstacles surrounding breastfeeding in public have been suggested to have negative consequences for achieving exclusive breastfeeding in South Africa.[36] Similarly, in Ghana, mothers feeling uncomfortable when breastfeeding in public was identified as a barrier to achieving exclusive breastfeeding.[27] In other regions of the world, such as Iraq, women's approaches and views surrounding breastfeeding in public were found to be important factors for achieving EBF, such that women's refusal to breastfeed in public was significantly correlated with an increased likelihood of not exclusively breastfeeding.[37] Therefore, mothers' views, attitudes, and feelings surrounding breastfeeding in public are significant influences in being able to achieve optimal and recommended breastfeeding practices.[19,27,37,50]

Issues and views surrounding breastfeeding in public have also been associated with a mother's breastfeeding self-efficacy, and high or low levels of breastfeeding self-efficacy have been identified as being either facilitators of or barriers to achieving EBF, respectively.[19,24,31,32,52] Breastfeeding self-efficacy represents a mother's self-assurance in her capability of successfully breastfeeding and achieving her infant feeding goals and is largely foretelling of her actions, such as her feeding practices.[19,52–54] Regarding breastfeeding in public, a study from Kenya found that a lack of confidence and issues of self-efficacy were problematic for the ability of younger women

to breastfeed, as they faced fear surrounding breastfeeding in public.[31] Similarly, scholars have discussed that breastfeeding self-efficacy can be influenced by issues such as the worry of being judged by others, regardless of whether these worries are self-perceived or demonstrate societal standards surrounding appropriate behaviors in public.[38]

Evil Eye and Breastfeeding in Public

One factor found to influence perceptions of breastfeeding in public in Tanzania is the belief in evil eye.[17] Beliefs surrounding evil eye have been reported in countries around the world such as Greece,[55] Turkey,[56] Pakistan,[57] Guatemala,[58] and Italy,[59] as well as in Ghana,[60,61] Ethiopia,[24,62–64] and Kenya.[65–67] Generally, evil eye has been defined as "*an eye or glance held capable of inflicting harm*" or as "*a person believed to have such an eye or glance.*"[68] Evil eye has been reported in multiple regions of Tanzania; for example, evil eye has been cited as a cause of child convulsions in the rural Kilombero Valley of south-eastern Tanzania,[69] and "*bad eye*" has been reported as causing difficulties during pregnancy in Dar es Salaam, Tanzania.[70] Additionally, in north-east Tanzania, an infant who throws up breastmilk or is not able to consume breastmilk is believed to be bewitched by means of evil eye,[71] and evil eye has also been reported in Pemba Island, Tanzania.[72] The fear of being affected by evil eye when breastfeeding in public has previously been reported in the Kilimanjaro Region of Tanzania and has been identified as a potential barrier to achieving EBF in this region as women may be discouraged from breastfeeding in public.[17]

Working Women and Breastfeeding in Public

Given that women working in the informal sector typically do not have paid maternity leave and often must return to work shortly after giving birth due to financial reasons, it is a common practice for women working in the informal sector to bring their infants to work with them, and this practice typically necessitates breastfeeding in public settings.[28,34,73–75] Therefore, views and issues surrounding breastfeeding in public have shown to be important factors among working mothers in the informal sector.[28] For example, in India and South Africa where breastfeeding in public is not socially accepted, the ability of informally working mothers to breastfeed was impacted, and women who breastfed in public at their place of work were regarded with less respect.[28] Similarly, in Ghana, even though breastfeeding in public is approved by society, this acceptability did not apply to the workplace,[75] and a study in Cameroon described how breastfeeding in public was not socially accepted, particularly in certain spaces including workplaces.[30] These negative views surrounding breastfeeding in public in workplaces are important to consider since women's employment itself has already been identified as a barrier to achieving EBF.[15,16,19,21–32] Additionally, working outside of the home in public has been found to adversely impact women's views towards breastfeeding in public, which could have important implications for achieving breastfeeding recommendations since a mother's beliefs and views surrounding breastfeeding are a major factor affecting her infant feeding practices.[19,32,47,48,50,76]

Study Objective

Overall, views towards and acceptance of breastfeeding in public, both among women and among society, are important factors in achieving exclusive breastfeeding, as being unable to

comfortably and confidently breastfeed in a supportive public environment is a barrier to exclusive breastfeeding.[19,27,31,32,36,37,40,47,48,50,51] Nevertheless, being able to achieve EBF for 6 months typically requires the practice of breastfeeding in public, and mothers' views and feelings surrounding breastfeeding in public are important influences on the ability to successfully EBF.[19,27,32,37,44,50,51,77,78] Little is reported in the literature about mothers' views and beliefs surrounding breastfeeding in public among women working in the informal sector. Therefore, the objective of this study is to understand the perceptions and views of breastfeeding in public among mothers of infants less than 6 months of age who work in the informal sector in Moshi Urban District, Kilimanjaro Region, Tanzania.

Methods

Setting and Context

This study took place in the Moshi Municipal Council of Tanzania, which is the capital of the Kilimanjaro Region in the Northern Zone.[79] Over 200,000 people live in the city of Moshi, and 22.5% of the population of the Kilimanjaro Region lives in urban areas.[80,81] The official languages of the Kilimanjaro Region are Kiswahili and English.[80] More than 80% of women in Tanzania work in the informal sector, and agriculture (39.8%) and unskilled manual labor (34.0%) are the most common types of occupation among women in the Kilimanjaro region.[79,82]

The most recent Demographic and Health Survey for Tanzania (2015-2016) determined the infant mortality rate to be 43 deaths per 1,000 live births, demonstrating a decrease from previous years.[79] In comparison, the infant mortality rate for the Northern Zone of Tanzania was 38 deaths per 1,000 live births.[79] However, the DHS also discovered that the infant mortality rate was greater in urban areas (63 per 1,000 live births) than in rural regions (47 per 1,000 live births) of the country as a result of elevated neonatal mortality rates.[79] The DHS reported that acute respiratory infection and diarrhea were primary causes of child death and illness in Tanzania.[79] In 2015-2016, 3.6% of children under five in the Northern Zone reported symptoms of acute respiratory illness within the past two weeks, as compared to the overall mainland report of 3.7%.[79] However, in the mainland of Tanzania, a greater percentage of urban children (5.1%) as opposed to rural children (3.2%) reported symptoms of acute respiratory illness.[79] Similarly, diarrhea among children under five years of age was more prevalent in urban regions (14.2%) as opposed to rural parts of the mainland (11%).[79] While the Northern Zone of Tanzania was found to have the lowest prevalence of early childhood diarrhea, at 8%, the Kilimanjaro region specifically had a slightly higher prevalence at 10.2%.[79] In the Kilimanjaro region, 17.3% of children under five reported fever, slightly lower than the mainland percentage of 17.9% for Tanzania.[79]

Regarding nutritional status, around a third of children less than five years of age are stunted in Tanzania.[79] While underweight and stunting levels have been falling in Tanzania, there has been no real improvement in wasting among children under five years of age.[79] Just over 50% of infants in Tanzania had been breastfed within the first hour after birth (i.e. early initiation of breastfeeding).[79] Almost 60% of infants less than 6 months of age in Tanzania are exclusively breastfed, and exclusive breastfeeding practices have improved since 1991.[79] However, only 26.6% of infants in the age range of 4-5 months old in Tanzania were being exclusively breastfed

at the time of the DHS.[79] It has been determined that EBF for 6 months increased in Moshi Municipality from 2002-2014.[83]

Research Team, Data Collection, and Participants

The data for this study comes from a larger, two-phase research study surrounding the infant feeding experiences among women working informally in Moshi Urban District, Tanzania. This study was conducted by researchers from the Kilimanjaro Christian Medical University College (KMCUCo), the Gillings School of Global Public Health at UNC-Chapel Hill, and Better Health for the African Mother and Child. The first phase of the larger study sought to understand the breastfeeding experiences of informal women workers as well as the strategies they use to breastfeed their infants while working. The second phase involved evaluating the acceptability and viability of recommended breastfeeding strategies among mothers working in the informal sector. The data for this analysis comes specifically from the first phase of the study.

This study was an exploratory project that utilized qualitative methods. All participants were recruited at Majengo Health Centre, Pasua Health centers, and Bondeni and Korongoni dispensaries in Moshi Municipal Council in the Kilimanjaro Region of Tanzania. Women at the health center were recruited if they had at least one infant under the age of 6 months at the time of recruitment, if they were breastfeeding, and if they worked in the informal sector (i.e. did not have a job that included formal benefits such as paid maternity leave). Examples of informal jobs include working independently as a tailor or selling items as a vendor. Women were not eligible to participate if they were under the age of 18, had an infant with health concerns that would affect infant feeding practices, or if they themselves had a health concern that would hinder their ability to exclusively breastfeed and participate. Participants were purposively selected and were approached in-person about participating in the study. No women refused to participate in the study. Five data collectors with advanced degrees in medicine, public health, and social work and who are affiliated with the Kilimanjaro Christian Medical University College and Better Health for the African Mother and Child conducted a total of 20 semi-structured in-depth interviews in Kiswahili. Interviews were conducted either at Majengo or Pasua health centers or at Bodeni and Korongoni dispensaries. Relationships with participants were not established prior to the interviews, and participants were informed of the goals of the research study prior to the interviews. No participants dropped out of the study. The interviews were conducted in person and typically lasted between 30-60 minutes. After each interview, the participant was given an opportunity to ask any questions. An in-depth interview guide that included a total of 35 primary questions with additional probes was followed. The in-depth interview guide was pilot tested and included questions concerning sociodemographic factors, the participant's work, breastfeeding practices with the index child, household support, support with infant feeding, the participant's partner, and household food insecurity. The interview guide also asked about participants' views of breastfeeding in public; however, no questions were included concerning beliefs about evil eye. Nevertheless, in a few of the interviews, interviewers did ask participants directly about evil eye or hinted at the topic. Summary debriefing notes were recorded after some of the interviews. All interviews occurred during November and December of 2019, and the audio was recorded and

then transcribed. The in-depth interview transcripts were translated from Kiswahili into English, and these de-identified transcripts were received at UNC-Chapel Hill.

Data Analysis

All interview transcripts were uploaded to ATLAS.ti (Version 8) software, which was used to code the interviews. Five individuals were involved in the coding process, two from KCMUCo and three from UNC-Chapel Hill. Initial codes were developed according to the in-depth interview guide. This initial codebook, with code descriptions, was uploaded to ATLAS.ti (Version 8). Additional thematic codes were developed via an iterative process throughout the coding process, and codes were edited as needed. The first 3 interview transcripts were coded and reviewed collectively by the team to establish consistency in the group's coding and to discuss the need for additional codes. All 20 interview transcripts were coded thematically by at least two team members, with the first author being involved in the coding of all transcripts, and a constant comparative method was used to analyze the interviews.[84] A participant characteristics tracking sheet was also maintained throughout the coding process, detailing women's characteristics (age, religion, education, marital status, living situation, etc.), characteristics of her partner and family situation, as well as details concerning her work (type of work, how many days per week she works, how long it takes her to get to work, what transportation she uses, etc.). After all the interview transcripts had been coded, output summary documents were created for different code categories in order to identify themes and descriptive quotes.

Throughout the coding and data analysis process, the research team met regularly via Zoom and also communicated over email. Communicating regularly with the research partners in Tanzania throughout the data analysis process was vital in ensuring that the data was accurately understood and interpreted, allowing for retention of original meaning.

Ethics and IRB Approval

IRB approval for this study was received from UNC-Chapel Hill's IRB as well as from the IRB at the Kilimanjaro Christian Medical University College in Moshi, Tanzania and the National Institute for Medical Research (NIMR). Approval for this study was also obtained from the District Medical Office, and Head of the Majengo, Pasua, Bondeni and Korongoni facilities. Written informed consent was obtained from all participants prior to conducting each interview. Participants were informed of the study aims and objectives and were given contact information for research study staff if questions or concerns surrounding the research arose. All participants' names were removed from the interview transcripts prior to receiving the data at UNC-Chapel Hill to maintain anonymity and protect participants' identities.

Results

Participant Characteristics

Participant characteristics and the characteristics of their male partners are shown in **Table 1**. Almost all respondents reported engaging in paid work outside of the home; however, at the time of the interviews, about half of the women had not resumed working since giving birth. Participants' work experiences varied greatly, for, when fully working, the participants could work

varying numbers of days per week and could spend varying hours outside of the home, as most participants worked outside of the home while a few worked from home.

Regarding index infant characteristics, of note is that one participant had given birth to twin boys, and therefore the sample size for the index infants (n=21) differs from that of the mothers (n=20). The mean age of the infants was ~3.0 months old, with a range of 5 days old to 5.5 months old at the time of the interviews; 12 infants were male while 9 were female. Regarding infant feeding practices, 10 women reported not having introduced any foods or liquids to their infant at the time of the interview while 7 women reported having introduced foods or liquids, such as water or porridge. However, for 3 participants, it was unclear whether they were exclusively breastfeeding their infant. Therefore, the true number of EBF may vary.

Table 1. Participant Characteristics and Characteristics of Their Male Partners

	Women n=20	Male Partners n=19*
Age in Years, Mean (Range)	30.55 (18-43)	33.68 (23-54)
Religion		
Muslim	9 (45%)	9 (47.37%)
Christian	9 (45%)	10 (52.63%)
Unknown	2 (10%)	--
Education		
None	1 (5%)	--
Primary School	13 (65%)	6 (31.58%)
Secondary School	5 (25%)	10 (52.63%)
Diploma	--	1 (5.26%)
College	1 (5%)	2 (10.53%)
Food Security: Reported Missing a Meal in the Last 30 Days		
Yes	2 (10%)	
No	17 (85%)	
Unclear	1 (5%)	
Occupation**		
Tailor	4 (20%)	
Works at a shop	3 (15%)	
Works informally in the food industry	9 (45%)	
Sells clothes or shoes	5 (25%)	
Work Location		
Works Outside the Home	18 (90%)	
Works at Home	2 (10%)	
Has Resumed Work since Giving Birth		
Yes	9 (45%)	
No	11 (55%)	
Total Number of Children, Mean (Range)***	2.65 (1-5)	
Has Other Family Members Living w/ Them		
Yes	2 (10%)	
No	18 (90%)	
Always Lives with Partner		
Yes	16 (80%)	
No, partner travels sometimes	3 (15%)	
N/A	1 (5%)	

*One participant's husband had passed away, hence n=19 for the male partners.

**One participant held multiple jobs

***Two mothers reported having five children, but one said that one of those children was deceased, so four children were counted for that mother.

Breastfeeding in Public Results

The objective of this analysis was to explore participants' views and beliefs surrounding breastfeeding in public. In the in-depth interviews, women were asked about their experience with and/or opinions and beliefs surrounding breastfeeding in a public place, i.e. in the gathering of people and/or in public at their place of work.

Negative Views towards Breastfeeding in Public

The majority of participants expressed a negative view toward or a dislike of breastfeeding in public. For example, a few women described that breastfeeding in public was not good. One of these women described that she cannot breastfeed in public due to her upbringing because she had never witnessed her own mother breastfeeding in public, describing that a child learns from its parents. Similarly, multiple women mentioned personally not liking breastfeeding in public.

"It is not a good thing…It's not. In a gathering of people, I don't like [breastfeeding]…I just don't like it, why should I breastfeed a child where people are gathered? I just don't like it..."—25-year-old mother of a 4-month-old, works as a food vendor

Women mentioned multiple reasons surrounding their negative views towards breastfeeding in public.

Shyness

One reason for disliking breastfeeding in public that was mentioned by a few women was feeling shy when breastfeeding in public. For example, one mother described how a mixed environment of different people (mothers, fathers, etc.) causes her to feel shy when breastfeeding in public. Similarly, another woman described how there are others who do not feel shy when breastfeeding; however, she herself expressed feelings of shyness towards breastfeeding in public.

"I don't know, but I personally, even when a person looks at me when breastfeeding, I feel shy, I don't know about others…for me it is shyness." –36-year-old mother of a 3-month-old, holds multiple jobs

Unhealthy Air

Another less common reason for disliking breastfeeding in public that was mentioned by some participants was the idea that the air in the public environment is not good for an infant, and a few participants described that dust and noise were issues at their workplaces. A 41-year-old participant who sells food items and has a 2-month-old infant shared the belief that the air in a public environment, where people are gathered, is not good for an infant to breathe. Similarly, another participant described how, in a public environment, people could be sick, causing the air to be unhealthy for the infant.

"…in the gatherings of people there are people who are sick, therefore, a child is still young and can be infected with diseases maybe by air, yes, in the gatherings of many people there are many things."—22-year-old mother of a 3-month-old, sells vitenge fabric

These examples demonstrate that the worry that an infant will get sick from the air or that the air is not good for the infant is a factor considered by some women when decision-making around breastfeeding in public. However, both of these women also mentioned the concept of evil eye as being an issue surrounding breastfeeding in public, described below.

Being Around Unfamiliar People

A few participants mentioned the idea that an issue with being in public is that, when in public, they would not know everyone. One participant alluded to the idea that, when in public amongst unfamiliar people, having someone flatter an infant can cause affliction.

"In a mix of people we don't know what everyone has in their heart, another can just say this child is cute and then it becomes a problem"—22-year-old mother of a 3-month-old, sells vitenge fabric

On the other hand, one participant expressed the idea of being around unfamiliar people in public in relation to evil eye, a concept described below.

"For me it is not good because those people there are many, you can't know how the person is…you can…when you breastfeed a child in an open place, as for me, what I am scared of because people, currently…people are not good and also eyes, also people's eyes are not good"—25-year-old mother of a 4-month-old, works at a shop

Evil Eye

The most commonly cited reason for a negative view of breastfeeding in public was "evil eye," that is, of having someone look at the infant when breastfeeding and causing the infant to experience some sort of affliction. Some participants spontaneously brought up the issue of evil eye when asked about breastfeeding in public whereas a few women were specifically asked about this concept by the interviewer. However, in most conversations where eyes or looking at an infant was discussed, the topic was brought up spontaneously by the participant. Evil eye was discussed by participants with multiple different religious backgrounds, and there did not appear to be any clear correlation between religion and discussing evil eye. Similarly, participants with different educational levels discussed evil eye. While fewer participants with secondary education discussed evil eye than participants with primary education, this is likely because the majority of participants in this study had primary education as their highest level of education. Neither of the two participants who worked from home reported believing in evil eye; while the topic never came up with one of these participants, the other participant discussed that she does not believe in evil eye. It is important to note that not every participant who discussed evil eye reported fearing or believing in it. Rather, while some participants feared evil eye, others reported that they did not have that belief and/or simply reported what is said by others about evil eye.

Multiple terms were used to describe this phenomenon. After being translated from Kiswahili, some women explicitly used the term "evil eyes" or "bad eye," while others mentioned people "having eyes," "looking at," or seeing the infant, or "*jicho*" ("eye" in Kiswahili). On the other hand, one participant described people who do not have a good eye ("*macho mazuri*"). One

interviewer used the term "*kijicho*" ("envy" in Kiswahili) to ask about evil eye, and the participant responded by using the term "*jicho*" in Swahili.

This phenomenon was described as a negative factor surrounding breastfeeding in public, illustrated by the following quotes:

"I can't nurse my baby in public…I don't trust people as having evil eyes"—39-year-old mother of a 3-month-old, sells/delivers meat to restaurants

"The truth is I don't take that matter lightly; I don't like breastfeeding in public or in a gathering of people…just see people as a whole, it is not everyone who has a good eye 'macho mazuri,' you may find some they don't have a good eye, then you breastfeed your child, the moment you reach home the baby is crying"—31-year-old mother of a 3-month-old, sells shoes

"There is a mix of people there and everyone with their eyes, sometimes you may focus on the business only and forget a child, yes…there are other people with evil eyes, they can look at a child and cause diarrhea"—22-year-old mother of a 3-month-old, sells vitenge fabric

One participant described that she was told by her parents not to breastfeed in public since the infant might be looked at with evil eye, and another participant described how she has heard since she was young that you should not breastfeed in public due to people's eyes. These participants illustrate that the fear of evil eye when breastfeeding in public may be a belief that is passed down from generations.

Who Can Cause Affliction by Evil Eye

Regarding who can look at an infant and cause harm, surprisingly, contrasting ideas were described. One mother, a 34-year-old woman who sells shoes at a market and has a 4-month-old, asserted the idea that an infant being affected by evil eye is only an issue around people who you know. This participant described that if you are around people you do not know, then you can go ahead and breastfeed, and she questioned how someone who you do not know can do anything to your infant. Contrastingly, another participant described how evil eye is only an issue when you are around people you do not know. In response to how she would act if the research team came to visit her at her home, this mother described that she would go ahead and breastfeed because she knows them and therefore does not need to fear when breastfeeding in front of them. The explanations of these two participants suggest that there is not a common, unanimous belief surrounding who can affect an infant via evil eye. While these women gave contrasting, yet more specific, explanations of who can affect an infant with evil eye (a familiar face versus a stranger), other participants more vaguely described the issue. For example, one participant described that someone can still look at an infant in a way that will cause harm even if they appear normal. A few participants expressed similar sentiments, describing how, in public, you are unable to know the nature of everyone:

"I don't like to go with a child to work because you don't know how are those people coming there…you can't know how a person is, another person when they look at a child you never know if they are good or bad (interviewer: so there is a time a person can look at a child and be a

good person?) yeah, people differ (interviewer: another be bad) yeah"—25-year-old mother of a 4-month-old, works at a shop

Considering the mechanism of how someone can look at a child and cause affliction, most mothers did not specify and simply mentioned that looking at a child with evil or bad eye will result in harm to the infant or to the breastmilk. However, one mother explicitly cited jealousy as a factor for causing harm to an infant.

"They say that a person may look at you maybe and feel jealous, or they said maybe they got eye, may look at the breast, and then when a child breastfeeds, never gets healthy, a child starts diarrhea and diarrhea only ie milk and stool separately or at night a child may disturb and not sleep, so you know the milk is already destroyed"—24-year-old mother of a 4-month-old, works as a tailor

Evil Eye Effects on the Infant or on the Breastmilk

Participants described multiple different afflictions that evil eye could cause, either directly to the infant or indirectly by affecting the breastmilk. A few mothers used *"zongo"* to describe the outcome associated with evil eye, and *"zongo"* was said to cause the infant to cry and not be able to sleep.

Multiple women described that evil eye can cause an infant to have diarrhea.

"They say that every person with their eyes, you can't breastfeed a child in the eyes of people, [the child] maybe can be affected, and get diarrhea or like vomiting"—25-year-old mother of a 4-month-old, works as a food vendor

Although this participant described how she did not take the beliefs in evil eye seriously, she mentioned that evil eye can cause a child to vomit. This effect was described by multiple participants. A few participants also described that looking at an infant with evil eye can cause the infant to cry.

"Currently when you breastfed a child in front of people, you can find a person was looking at you when you reach home a child is crying like what…a child might cry or change…a child might be crying sometimes and maybe sometimes vomiting"—25-year-old of a 4-month-old, works at a shop

A few participants also reported that evil eye can negatively affect breastmilk, thereby influencing the ability of the infant to successfully breastfeed. However, these mothers mentioned multiple different ways that the breastmilk could be affected by evil eye: preventing the breastmilk from coming out, causing the breastmilk to affect the infant, causing the breast to become sick, and destroying the breastmilk.

"The way I understand, breastfeeding in a gathering, some people may look on your baby, then milk won't come out, thus the child cannot breastfeed…they do say it is macho 'bad eye,' a person can look normal, but the way he/she will look at your child can cause harm to the milk"—41-year-old mother of a 2-month-old, sells food items

"They might look at him with evil eye and the child get sick or I get a breast sick"—18-year-old mother of a 3-month-old, sells food items at a kiosk

Prevention of and Remedies for Afflictions Caused by Evil Eye

Remedies and Prevention for the Infant

A few different methods were mentioned by participants surrounding the prevention of afflictions by evil eye as well as remedies for when an infant has been affected by evil eye. Interestingly, one participant suggested that, if a child has been looked at with evil eye and is sick as a result, bringing the infant to the clinic is not useful because healthcare workers will not diagnose the infant as having a disease. Considering this statement, it is not surprising that all the prevention and remedy strategies mentioned by participants were home remedies. One strategy to treat a child that has been afflicted by evil eye was that of bathing a child in bicarbonates, although one of the women, the same participant who mentioned not being able to have the child diagnosed at the clinic, described not really believing in this strategy.

"It happened when she was young. I think it was in a big gathering of people. We were at home for a family funeral and it happened but others, no…I just came back, I prayed for her, and there are bicarbonates my mother bought, I bathe a child with only, but that is a belief issue…I don't trust it much"—36-year-old mother of a 3-month-old, holds multiple jobs

"There are many techniques you're advised, maybe you can take bicarbonates and bathe a child with it, not to give her to drink because a child is below six months and you can't give anything, so you can take the bicarbonates, put them in the water, and bathe a child with them"—22-year-old mother of a 3-month-old, sells vitenge fabric

Another strategy mentioned by participants to overcome evil eye, and a strategy that a few women were asked directly about by the interviewer, was that of using an eye/eyebrow pencil to draw on the infant. While it was not specified in most of the discussions how someone would draw on the infant, one participant mentioned that you would draw with the eyebrow pencil on the infant's face. One participant described that she had heard of this strategy from her mother. According to participants, the use of eye/eyebrow pencil appeared to be more of a preventative or protective measure rather than a means by which to treat an infant who has been afflicted by evil eye, as demonstrated in the following quotes:

"They say when you draw on a child with eyebrow pencil evil eyes won't affect"—37-year-old mother of a 5-month-old, sells juice

"That of using eye pencil drawing I have heard. They say like eye pencil drawing prevents evil eyes, sometimes others say when people look a child will be shocked and cry"—25-year-old mother of a 4-month-old, works as a food vendor

Not all participants who discussed the eye/eyebrow pencil prevention strategy reported using or believing in this method. For example, while one participant described that she usually draws with eyeliner pencil to protect her infant, another participant described that she had heard of using eyebrow pencil, but she personally has never used it to draw on her infant. These different

perspectives suggest that while some participants may know about the practice of eyebrow pencil to protect against evil eye, not all women believe in or practice this strategy. One participant offered insight into how eyebrow pencil works to prevent an infant from being affected by evil eye:

"Another may be we are advised when we leave home going may be in the health facilities, to draw a child by eyebrow pencil. Eyebrow pencil helps a lot…they said it help to… when you draw with eyebrow pencil on the face it is something black so may be when a person with evil eyes looks, they will say that is something black [so they cannot see the child] *so she may not do anything to a child because they see something black at the face, we have been told eyebrow pencil helps like that…yes is like that I heard eyebrow pencil help very much yes"*—22-year-old mother of a 3-month-old, sells vitenge fabric

A few participants from different religious backgrounds also described believing in God for protecting their infants, and one participant mentioned that she prayed for her child after her infant was believed to be affected by evil eye.

"I believe a child is protected by God because I can't do anything and say that it is a protection, God is the only protector…they say eye draw pencil helps to protect a child from evil eyes…yes, those evil eyes you see, but I don't have that belief. You see, this is a boy since I gave birth, if he was a gal I would have said that it is just makeup"—43-year-old mother of a 2-month-old, works as a tailor

While the use of bicarbonates and eye/eyebrow pencils were brought up by multiple women, only one participant described the idea of using the roots of plants ("*rooting*") as well as using charcoal to prevent evil eye afflictions, although it appeared that she did not believe in these methods. While the participant did not specify what types of plant roots to use for prevention, she described that putting charcoal in the infant's socks would help. This participant was also the only participant to mention witches in relation to evil eye.

"You equip him with charcoal…in the socks, but it's normal for witches to follow up on babies which are not theirs"—39-year-old mother of a 3-month-old, sells/delivers meat to restaurants

Some participants also brought up the idea of using a covering and/or moving out of the way when breastfeeding to avoid evil eye. However, not all participants who described these practices did so in the context of evil eye, and these appeared to sometimes be more general strategies of breastfeeding in public. These practices will be discussed below.

Remedies and Prevention for the Mother

A few women described using bicarbonates in a different way than described above to address issues with evil eye. For example, one woman, a 24-year-old mother of a 4-month-old who works as a tailor, described that others say that a woman can wash her breasts with bicarbonates and pea leaves in order for the breasts to return to normal after a child is affected by evil eye. Similarly, another participant also mentioned that others advise using bicarbonates as a protection strategy against evil eye by washing the breasts with bicarbonates.

"I have heard, but they say the way to prevent is to wash your breast with bicarbonates"—43-year-old mother of a 2-month-old, works as a tailor

Neutral Views towards Breastfeeding in Public and Not Believing in Evil Eye

In this study, a few participants appeared to have no major issues with breastfeeding in public. Similarly, while one participant described that she herself did not like breastfeeding in public, she described that other people view breastfeeding in public as normal. A few participants mentioned not having any beliefs surrounding breastfeeding in public.

"I don't have any kind of belief, but when you want to breastfeed a child, you have to consider a calm place…no one can stop you when breastfeeding, it's okay. But myself, I don't have any belief"—25-year-old mother of a 3-month-old, sells clothes at a kiosk

One of the participants who described not having the belief in evil eye suggested you could only be afflicted by evil eye if you believe in it.

"Even when I go to the hospital I can't say that I can sit on the bench and take my breast out and start to breastfeed like this in front of people, no…I am saying this because I don't have that belief that if someone sees you it will be this and that, no, I feel shy with my body and because even in the car you can't, and as a mother I have to like this baby show and cover a child while breastfeeding. (Interviewer: and you never heard people saying about eyes or evil eyes?) They say very much, in the street people talk a lot, if you have those beliefs, it will happen to you, and if you don't have those[beliefs], you can't get"—43-year-old mother of a 2-month-old, works as a tailor

While the participants who appeared to have no major issues with breastfeeding in public and/or not having any beliefs surrounding breastfeeding in public were much fewer than the women who reported negative views of breastfeeding in public, these few participants demonstrate that negative views towards breastfeeding in public are not universal among all women working in the informal sector of Moshi Municipal City.

Strategies of Breastfeeding in Public

Using a Covering

Participants described a few strategies that can be used when breastfeeding in public. The most commonly cited method described by participants was that of using a covering when breastfeeding in public. For example, many participants reported that they can cover themselves and/or their infant with a "*kanga*," a "*kitenge*," a scarf, or clothes when they breastfeed in public, although it was sometimes unclear whether participants used this strategy or were simply describing it.

"When I start breastfeeding I stay away from people, I cover him with clothes, and then I start to breastfeed"—18-year-old mother of a 3-month-old, sells food items at a kiosk

"*If I want to breastfeed, I cover my breast. I cover very well and breastfeed a child"*—24-year-old mother of a 4-month-old, works as a tailor

As expected by the reports of negative views surrounding breastfeeding in public, some participants described covering themselves in public due to their negative views and dislike towards breastfeeding in public. For example, the same participant who described feeling shy when breastfeeding in public because there are different types of people, such as other fathers and mothers, described that she covers herself with a "*kitenge*" (a large piece of fabric) when breastfeeding in public. A few other women also described using a covering because they are shy when breastfeeding in public. On the other hand, one participant described that she is not fearful of breastfeeding in public, but demonstrated how to cover the infant when breastfeeding after being asked about evil eye, alluding to the idea that using a covering is a method used to potentially overcome the issue of evil eye when breastfeeding in public. Other women also discussed using a covering directly in relation to evil eye.

"I don't like it at all…I don't like to breastfeed in front of people. Even if I come to the clinic, I will come with kanga [a cloth wrap] *and cover my child. I will breastfeed inside the kanga….aaah, I am worrying, others' eyes, yeah…others have evil eyes, you can breastfeed a child…when you arrive, you're surprised that a child's stomach is full, having gas, or vomiting*"—34-year-old mother of a 4-month-old, sells shoes at a market

"I move aside and breastfeed or if maybe it is a tight place and there is no space, there is a meeting or what, I have kanga [a cloth wrap] *in my handbag, I take kanga, I get covered and breastfeed so that a child won't be affected…"*—24-year-old mother of a 4-month-old, works as a tailor

Moving Aside or Finding a Place to Breastfeed

Another method mentioned by multiple women that can be used when breastfeeding in public is moving away from people and/or finding a more private place to breastfeed. Moving aside was sometimes combined with using a covering.

"*I to breastfeed a child in open places, personally, I don't like. I see like a place, if I see a place is very open, I can move, and go to breastfeed a child aside (interviewer: for example here you came at clinic there is gathering of people when a child want to breastfeed what will you do?) I cover him and breastfeed…*"—25-year-old mother of a 4-month-old, works at a shop

"When I start to breastfeed I stay aside, cover him and then start to breastfeed."—18-year-old mother of a 3-month-old, sells food items at a kiosk

The participant who voiced the last quote also alluded to the idea that moving aside is another means by which to address the issue of evil eye when breastfeeding in public, as she described that she would move away from people and then breastfeed so that the infant would not be seen by others, as they might look at the infant with evil eye. Similarly, one mother described using a specific place at her workplace to breastfeed in order to avoid the problems of breastfeeding in public.

One participant who mentioned using a covering and moving away from others, and who had also described being shy when breastfeeding in public, described that a reason for such a

practice is because it is not good for food to be eaten in public, and the breastmilk is the child's food. This participant described how even for adults there are certain places to eat food:

"*I personally, speaking from my side, honestly, it gives me a hard time to breastfeed a child in front of many people, but when there is no way, I take a kanga* [a cloth wrap]*, I cover myself first and the child, I make sure no one sees her, and then I take the breast and feed, but there are our fellows who are not shy, they just breastfeed. But it's good to hide a child's food, because it's food. Even a parent cannot just sit in an open place and eat, no, there is a special place for eating food, so when you look at that place and there is no place, you can stay aside to breastfeed, and you have to sit there and cover yourself to start feeding a child…and also, it's not good…it's not good for a child to be breastfed in front of people…"*—36-year-old mother of a 3-month-old, holds multiple jobs

Another participant described a similar belief, describing that it is not good to breastfeed an infant in public and that people have to go to a particular place to breastfeed, just as people need to use "*food booths*" when they are eating their food. This participant, who works at a phone shop, explained that, while her work environment is friendly for breastfeeding, she does not like to do so; rather, she uses her lunch breaks or asks for permission to go and breastfeed her infant. Similarly, one participant who sells vegetables from her home described how she would go inside to breastfeed because she does not like breastfeeding in public. A few other participants similarly described finding a place to breastfeed:

"I don't breastfeed in public. I look for a place to sit, then I breastfeed where there are no people…I can't breastfeed my baby in public"—39-year-old mother of a 3-month-old, sells/delivers meat to restaurants

"If I see it is a place where if I sit I won't be at peace and breastfeed my child, I would rather look for a place where I can sit at peace and breastfeed my child well, make a child burp, and go back to the service."—25-year-old mother of a 4-month-old, works as a food vendor

Reasons for These Practices

While the majority of women who described using a covering, moving out of the way of people, and/or finding a place to breastfeed mentioned doing so in the context of the issues of breastfeeding in public, such as shyness and evil eye, a few participants had different perspectives. For example, one woman described that it is okay to breastfeed in public as long as you cover the infant and find a calm area for the baby to breastfeed, emphasizing the necessity of breastfeeding the infant. However, this participant also described that she has heard of evil eye and noted that others claim that you should not breastfeed in public. Similarly, another participant also made the case that breastfeeding in public is okay as long as you cover the child with a kanga, and she described that the reason for using a kanga is because not everyone in public wants to see a child being breastfed, thereby offering insight into the community's view of breastfeeding in public.

"Not bad if you will cover him, you will continue to breastfeed…I will cover him like this with kanga…because some people…not everyone likes to see a person breastfeeding a child, so we do that"—23-year-old mother of a 3-month-old, works as a tailor

Another participant, who described using a covering since she is shy, described how some women cover themselves due to the fear of evil eye (although this participant did not take those beliefs seriously), whereas other women cover themselves because they perceive it to be appropriate to do so. This participant described how a challenge with using a kanga when breastfeeding is that sometimes the infant gets hot inside the kanga and wants to be free from the covering.

Being in Public Affecting or Not Affecting Decision to Breastfeed

Given the negative views surrounding breastfeeding in public described by the majority of participants, it would be expected that being in public could affect participants' decisions to breastfeed their infants. In the interviews, around half of the participants were asked whether being in a gathering of people influenced their decision to breastfeed and/or the time of breastfeeding their infant. As expected, multiple women described that being in public did impact their breastfeeding decision. For example, while one participant described that she can breastfeed at her place of work because it is not crowded and she can sit aside and cover herself, when asked about breastfeeding when there are people around, she described that she will need to delay for a little while until she is able to move to another place to breastfeed. Similarly, another participant described how she will not breastfeed at all when she is at church or in the car. A few other participants also described how being in public sometimes causes them to delay or be late in breastfeeding their infant as they try to find somewhere where they can breastfeed.

"Yeah, makes it late because the time when a child is not calm means [the child] wants to breastfeed, but you just go around until maybe that person moves…if it happens that he/she is not moving, you will have to go, yeah, so you can breastfeed your child"—34-year-old mother of a 4-month-old, sells shoes at a market

"Will be not in time because there are many people so I will be hiding…"—22-year-old mother of a 3-month-old, sells vitenge fabric

Despite the general dislike of breastfeeding in public shared by the majority of participants, multiple women nevertheless described that being in public would not affect their decision to breastfeed and/or the timing of breastfeeding. For example, one woman mentioned that she will breastfeed when it is time for her to do so, although she described that she may need to find a peaceful place to breastfeed depending on the environment. Some participants who did not let being in public affect their decision to breastfeed simply described how they would cover themselves or move aside, and multiple women emphasized the necessity and importance of breastfeeding their child.

"No, I will find a place to breastfeed my child, I won't stop breastfeeding. But I must breastfeed my child"—31-year-old mother of a 3-month-old, sells shoes

"No, I breastfeed. I won't stop breastfeeding my child, but I won't show my breast in public for everyone to see. But when you breastfeed, everyone will know that you're breastfeeding"—37-year-old mother of a 5-month-old, sells juice

While many participants dislike breastfeeding in public, some participants also acknowledge the importance of breastfeeding their child and will find a way to be able to breastfeed in public.

Discussion

The World Health Organization recommends that infants be breastfed on demand for best breastfeeding practices.[2] Since infants only consume a small amount of milk at each feed due to their small stomach size, they must breastfeed frequently, and therefore breastfeeding on demand is important to ensure that infants stay well-fed.[4,85] Additionally, not breastfeeding frequently or on demand can decrease breastmilk supply, which can be problematic for successfully breastfeeding, whereas breastfeeding frequently ensures an adequate supply of breastmilk.[4,86] However, despite the importance of breastfeeding on demand, women working in the informal sector have been found to face disapproval and embarrassment when breastfeeding in public, which is important to note given that over 80% of women in Tanzania work in the informal economy and that issues surrounding breastfeeding in public have been described as a barrier to breastfeeding on demand.[28,76,82] Although many of the participants in this study had not yet resumed work since giving birth, almost all participants had jobs that required working outside of the home, indicating the importance of understanding beliefs and views surrounding breastfeeding in public since breastfeeding in public at workplaces is not approved by society in some countries, and being in public working outside of the household has been found to negatively influence how women view breastfeeding in public.[30,75,76]

The majority of participants expressed a negative view of breastfeeding in public in this study. Negative views and feelings towards breastfeeding in public have been reported in other regions of sub-Saharan Africa as well, such as in Cameroon and Ghana.[27,30,76] The study's findings that shyness and the belief that the air in a public environment is not good for an infant are negative factors surrounding breastfeeding in public are similar to results shown in studies in Ghana and Ethiopia where women in Ghana experienced shyness with breastfeeding in public, and the quality of air in public areas was identified as an issue surrounding breastfeeding in public in Ethiopia.[24,76] One participant cited jealousy as being a factor in causing harm to the infant, similar to findings reported in Pemba Island, Tanzania where a method of wickedness included gazing at an infant in an envious manner.[72] Another participant in this study described that calling an infant cute, a form of flattery, causes harm; similarly, in Pemba Island, Tanzania, another method of wickedness is flattering an infant while simultaneously desiring bad luck for the child.[72] While many participants in this study did express a negative view towards breastfeeding in public, this view was not universal, and some participants appeared to have no major issues with breastfeeding in public and/or reported having no beliefs surrounding breastfeeding in public. Similarly, some women in Ethiopia were found to not experience embarrassment when breastfeeding in public,[24] and participants in Ghana were found to hold the belief that they should be allowed to breastfeed wherever they are, with some of them not having any issues with breastfeeding publically.[76]

Many participants in this study discussed the concept of evil eye; however, not all participants who described evil eye reported believing in it, and some participants never discussed the topic of evil eye. Evil eye has been discussed in multiple regions throughout Tanzania, and

mothers in the Kilimanjaro region have previously reported fearing breastfeeding in public due to the belief of being vulnerable to evil eye.[17,69,70,72] In Kenya, evil eye has also been described as a reason as to why some mothers begin feeding their infants with bottles and abstain from breastfeeding when in a public environment, demonstrating that evil eye beliefs are important to consider in regards to infant feeding practices.[65] Additionally, it is important to understand mothers' views of breastfeeding, such as views of breastfeeding in public, in order to successfully support mothers in achieving breastfeeding recommendations, and healthcare providers should seek to understand how beliefs, such as the belief in evil eye, may affect not only mothers' views of breastfeeding, but also their beliefs in infant illness causation and, consequently, their care-seeking behaviors.[60,87] In this study, the terms *kijicho and jicho* were used in one interview to describe evil eye, and the term *kijicho* has also been reported in Pemba Island, Tanzania to describe evil eye.[72]

Some participants in this study used the term *zongo* to describe the condition that an infant gets when affected by evil eye. This term has previously been used among women in the Kilimanjaro region in reference to evil eye, and it is a term that has also been used in other parts of Tanzania.[17,71,88–90] While in this study *zongo* was used to describe the condition that a child gets when looked at with evil eye, in other regions of Tanzania, *zongo* has been defined as witchcraft,[90] as evil eye or "evil eye illness" via bewitchment that prohibits breastfeeding and ruins breastmilk,[71] and even as the illness that a child develops after an "attack by a mature woman."[88] Some scholars even described that the definition of *zongo* was highly inconsistent among their participants in the Tanga district of Tanzania, but that it was a term that had been used in relation to child convulsions.[89] A similar term, *dzongo*, has also been reported in Kenya as being a kind of evil eye.[66] Multiple participants in this study described that evil eye could cause an infant to cry, vomit, and experience diarrhea. Diarrhea and crying caused by evil eye have been described previously in Tanzania, Kenya, and/or Ethiopia.[17,62,63,66,67,91] For example, evil eye causing infants to experience diarrhea and crying has previously been described in the Kilimanjaro region of Tanzania, and evil eye has been described as a supernatural cause of diarrhea in the Dodoma district of Tanzania.[17,91] Multiple women in this study also described that evil eye can cause issues surrounding the breastmilk and the ability of the infant to breastfeed. A similar phenomenon has been described in Dodoma district, Tanzania, where it was found that an infertile woman can look at a mother who is breastfeeding and prevent the milk from coming out.[92] Evil eye affecting the breast/breastmilk or the ability to breastfeed has also been reported in Kenya, Ghana, and Ethiopia.[24,31,60,63,65,67]

A few different methods for treating or preventing afflictions caused by evil eye were described by participants, although some participants did not describe actually practicing or believing in these methods. Nevertheless, the use of eye/eyebrow pencil to draw on the infant was the most commonly discussed prevention method, and a similar practice has also been reported in Kenya where drawing in between an infant's eyebrows is a method to combat evil eye.[66] A method described by one participant in this study involved putting charcoal in the infant's socks. Along similar lines, in Pemba Island, Tanzania, it was reported that putting kohl on an infant's face defends the infant from the evil objectives of others; however, in this case, it was described that the kohl would obscure the infant's face so that others would not know the infant's appearance.[72]

The Pemba Island study also reported that soot could be used on the bottom of infants' feet, similar to the idea of putting kohl in the infant's sock that was mentioned in the current study.[72] However, the purpose of these methods were different, with soot being used on the feet to deter evil spirits.[72] On the other hand, in the Morogoro Region of Tanzania, charcoal has been used in a different way to defend children from evil eye, by being incorporated into a type of amulet that the child wears.[93] One participant in this study mentioned the use of roots for preventing being affected by evil eye; similarly, the use of different roots for treating evil eye has also been described in Ethiopia.[63]

Using a covering when breastfeeding in public is a common practice that is used in many countries worldwide; however, some scholars discuss that using a covering can negatively impact mother-infant bonding by preventing eye contact.[28,40,42,45,46,76] A few women in this study discussed using a covering due to feelings of shyness; similarly, some women in Ghana have described that using a covering helps to combat the shyness that is felt when breastfeeding in public.[76] Just as some women mentioned coverings in relation to evil eye, women in Ethiopia were found to use a covering over their infants when breastfeeding in public in order to protect against evil eye.[94] One participant in this study described that an issue with using a covering is that it can cause the infant to feel hot and want to be free from the covering, and this same issue regarding using a covering has also been suggested in Ghana.[76]

The practices of moving away from people or finding a place to breastfeed were also described in this study; similarly, women working in the informal sector in South Africa described feeling the need to hide when breastfeeding at their place of work,[28] and mothers in other parts of the world have also described turning aside or moving.[95] Similar to the belief of a few participants in the current study surrounding the idea that infants need to be breastfed in particular places, 70% of women in a study in Ghana were found to believe that women must use private spaces when breastfeeding in public.[76]

In this study, some women reported that being in public could delay their breastfeeding as they must wait for people to move or try find a place to breastfeed, whereas others reported that being in public would not affect their breastfeeding and emphasized the need to breastfeed their infants. Similarly, some mothers in South Africa who were not comfortable with breastfeeding in public endured.[38] Additionally, mothers in Ghana reported that, since their infants must be breastfeed, they would still breastfeed in public,[76] and both mothers and fathers in Ethiopia were found to support the view that, irrespective of place, infants must be breastfed whenever they need to be fed.[24] Being able to breastfeed regardless of whether mother and infant are in public or in private is important not only for achieving EBF, but also since delaying breastfeeding contradicts the World Health Organization's recommendation of breastfeeding on demand for optimal infant feeding practices.[2,36] Additionally, being able to freely breastfeed anywhere is also important since delaying breastfeeding, or not breastfeeding frequently, can interfere with maternal breastmilk supply, reducing the amount of breastmilk that the mother produces and thereby impacting infant feeding.[4,86]

Overall, many of the participants in this study did not have positive views surrounding breastfeeding in public, and the participants discussed multiple factors surrounding their dislike of breastfeeding in public as well as multiple practices that can be used when breastfeeding in public.

Mothers' feelings and views surrounding breastfeeding in public are important factors influencing their ability to achieve EBF for 6 months, for beliefs and views heavily influence infant feeding practices.[19,27,32,48,50] It has been demonstrated that the more motivated a mother is to achieve EBF, the more agreeable she is with breastfeeding in public, and motivation is known to be influenced by self-efficacy.[19,54] Therefore, one way to potentially support EBF and improve views of breastfeeding in public among mothers is to improve mothers' breastfeeding self-efficacy, and consequently, their motivation to EBF; healthcare centers should therefore implement tactics to increase maternal breastfeeding self-efficacy and motivation, such as through antenatal care counseling and breastfeeding talks.[19,96,97] For example, educating family members on how to encourage breastfeeding mothers and advising mothers ahead of time of the types of obstacles they may face when breastfeeding can help improve maternal breastfeeding self-efficacy.[19] Additionally, since achieving exclusive breastfeeding for 6 months requires sometimes breastfeeding in public spaces, mothers should be counseled by antenatal care services on how to breastfeed when outside the home at their workplaces.[44,74,77,78] Since evil eye has shown to be a reason for negative views of breastfeeding in public and is said to cause multiple different afflictions to the infant, in order to provide optimal support to the breastfeeding mother, healthcare providers should understand these beliefs and the role they play in mothers' infant feeding practices and beliefs in the causes of infant illnesses via educational trainings or community briefings.[60,87] Having healthcare providers understand the belief in evil eye can also increase patient care quality in the clinical realm by cultivating a more mutual understanding between patient and provider and by fostering patient-centered care.[98] Additionally, providing areas in public environments as well as at workplaces where mothers can breastfeed safely could be beneficial, as women working outside of the home in the informal sector in South Africa and India were found to need improved choices for where they could breastfeed.[28] It is also important that the community is educated and provides a reassuring, encouraging environment for mothers by allowing breastfeeding, and specifically breastfeeding in public, to be considered an acknowledged, normalized practice.[36,40,42,44,46,95,99–101] Improving awareness of breastfeeding and breastfeeding in public could enable and support mothers, and campaigns, posters, and different forms of media could help improve education surrounding the benefits and importance of breastfeeding and could promote awareness and acceptability of breastfeeding in public.[38,40,42,44,46,65,76,95,99–101]

Since this study only assessed mothers' perceptions of breastfeeding in public, future research could assess the community's view of breastfeeding in public in Moshi Urban District, including the community's beliefs surrounding evil eye. Since a few participants in this study described that they were told by their parents or since they were young about not breastfeeding in public due to people's eyes, it would be interesting to assess grandparents' beliefs and their influence on the younger generation. Future research should also assess the relationship between mothers' infant feeding practices and their views towards breastfeeding in public and should determine whether belief in evil eye affects breastfeeding status. Since maternal employment has already been cited as a barrier to breastfeeding, future research should assess whether negative views towards breastfeeding in public among informally-working women exacerbate the barrier that working outside of the home already poses to breastfeeding recommendations.[15,16,19,21–32]

Strengths and Limitations

There were multiple limitations to this study. Breastfeeding in public was not the main focus of the interviews and therefore participants were not always asked in depth about their views, beliefs, and experiences surrounding breastfeeding in public. For example, some participants were asked multiple follow-up questions about topics they discussed whereas other participants were not asked as many clarification or follow-up questions. Additionally, not all participants were asked if being in public affected their decision to breastfeed and/or the timing of their breastfeeding. A few women were also explicitly asked about evil eye or the interviewer hinted at the topic of evil eye, whereas other participants did not receive this prompting.

Strengths of this study included the fact that it utilized a semi-structured interview design that allowed the interviewer the freedom to ask follow-up questions or additional questions of interest if necessary. Another strength of the study is that colleagues in Tanzania who are familiar with the study area and culture and who were involved in conducting the interviews participated in data analysis and were consulted throughout the data analysis process to ensure accurate interpretation and representation of the results. Strengths of this study also include that participants were from a diverse range of occupations, and participants were only eligible to participate in the study if they currently had an infant under the age of 6 months, minimizing the risk of recall bias when asked about breastfeeding practices.

Conclusion

It is important to consider mothers' views towards breastfeeding in public, given that attitudes and views determine infant feeding practices, and negative views of and feelings towards breastfeeding in public have been described as a barrier to optimal breastfeeding practices.[19,27,31,32,36,37,40,47,48,50,51] Additionally, mothers' views toward breastfeeding in public have been found to affect breastfeeding self-efficacy, and women working in the informal sector have previously been shown to receive adverse reactions when breastfeeding in public at their place of work.[24,28,31] This study revealed that many informal women workers with infants under 6 months of age in Moshi Urban District, Tanzania had negative views towards breastfeeding in pubic, with evil eye being the most commonly cited issue surrounding breastfeeding in public. Nevertheless, some women appeared to have no major issues with breastfeeding in public and/or did not appear to believe in evil eye, and participants described multiple methods that can be used when breastfeeding in public.

To improve views of breastfeeding in public and potentially support EBF, healthcare providers should establish programs to increase maternal breastfeeding self-efficacy and motivation, antenatal care services should counsel mothers on methods to comfortably breastfeed when outside the home, and community awareness and acceptance of breastfeeding in public should be prioritized so that mothers can freely breastfeed in a supportive and encouraging environment.[19,36,38,40,42,44,46,65,74,76–78,95–97,99–101] Additionally, since mothers described harmful effects that evil eye can have on an infant, and since evil eye has shown to negatively influence views of breastfeeding in public, it is recommended that healthcare providers better understand evil eye and the role it may play not only in infant feeding practices, but also in care-seeking behaviors, so that optimal care and support can be provided to the mother.[60,87,98] It is recommended

that future research assesses the community's views surrounding breastfeeding in public and evil eye in Moshi Urban District. Research should also be done to determine whether there is an association between women's views of breastfeeding in public and their infant feeding practices and whether belief in evil eye correlates with breastfeeding status. Future research should also determine whether negative views of breastfeeding in public augment the barrier that maternal employment poses to breastfeeding recommendations.[15,16,19,21-32]

References

1. World Health Organization. Infant and Young Child Nutrition: Global Strategy on Infant and Young Child Feeding. World Health Organization; April 16, 2002.

2. World Health Organization. Breastfeeding. World Health Organization website. https://www.who.int/health-topics/breastfeeding#tab=tab_2. Accessed March 26, 2021.

3. World Health Organization. Exclusive breastfeeding for six months best for babies everywhere. World Health Organization website. https://www.who.int/news/item/15-01-2011-exclusive-breastfeeding-for-six-months-best-for-babies-everywhere. January 15, 2011. Accessed February 28, 2021.

4. Centers for Disease Control and Prevention. How Much and How Often to Breastfeed. Centers for Disease Control and Prevention website. https://www.cdc.gov/nutrition/infantandtoddlernutrition/breastfeeding/how-much-and-how-often.html. Published December 11, 2020. Accessed April 7, 2021.

5. World Health Organization. Infant and young child feeding. World Health Organization website. https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding. August 24, 2020. Accessed February 28, 2021.

6. Iacovou M, Sevilla A. Infant feeding: the effects of scheduled vs. on-demand feeding on mothers' wellbeing and children's cognitive development. *Eur J Public Health*. 2013;23(1):13-19. doi:10.1093/eurpub/cks012

7. Al Sabati SY, Mousa O. Effect of Early Initiation of Breastfeeding on the Uterine Consistency and the Amount of Vaginal Blood Loss during Early Postpartum Period. *Nur Primary Care*. 2019;3(3). doi:10.33425/2639-9474.1108

8. Sobhy SI, Mohame NA. The effect of early initiation of breast feeding on the amount of vaginal blood loss during the fourth stage of labor. *J Egypt Public Health Assoc*. 2004;79(1-2):1-12.

9. Raheem RA, Binns CW, Chih HJ. Protective effects of breastfeeding against acute respiratory tract infections and diarrhoea: Findings of a cohort study. *J Paediatr Child Health.* 2017;53(3):271-276. https://doi.org/10.1111/jpc.13480

10. Victora CG, Bahl R, Barros AJD, et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong effect. *The Lancet*. 2016;387(10017):475-490. doi:10.1016/S0140-6736(15)01024-7

11. World Health Organization, United Nation Children's Fund. Enabling women to breastfeed through better policies and programmes: Global breastfeeding scorecard, 2018. World Health Organization; 2018.

12. World Health Organization. Global Targets 2025. World Health Organization website. http://www.who.int/nutrition/global-target-2025/en/. Accessed April 16, 2021.

13. United Nation Children's Fund, Division of Data, Analysis, Planning and Monitoring (2020). Global UNICEF Global Databases: Infant and Young Child Feeding: Exclusive breastfeeding, Predominant breastfeeding. New York: United Nation Children's Fund; 2020. https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding/. Accessed March 22, 2021.

14. United Nation Children's Fund, State of the World's Children, Childinfo, Demographic and Health Surveys. Exclusive breastfeeding (% of children under 6 months) - Tanzania. The World Bank. https://data.worldbank.org/indicator/SH.STA.BFED.ZS?locations=TZ. Accessed April 8, 2021.

15. Balogun OO, Dagvadorj A, Anigo KM, Ota E, Sasaki S. Factors influencing breastfeeding exclusivity during the first 6 months of life in developing countries: a quantitative and qualitative systematic review: Factors influencing EBF in developing countries. *Matern Child Nutr*. 2015;11(4):433-451. doi:10.1111/mcn.12180

16. Coetzee B, Tomlinson M, Osawe S, Abimiku A, Kagee A, INFANT Study Team. Barriers to and Facilitators of Adherence to Exclusive Breastfeeding Practices Among HIV Infected and Non-Infected Women in Jos, Nigeria. *Matern Child Health J*. 2017;21(4):953-960. doi:10.1007/s10995-016-2253-0

17. Mgongo M, Hussein TH, Stray-Pedersen B, Vangen S, Msuya SE, Wandel M. Facilitators and Barriers to Breastfeeding and Exclusive Breastfeeding in Kilimanjaro Region, Tanzania: A Qualitative Study. *Int. J. Pediatr*. 2019; 2019(1):1-7. doi:10.1155/2019/8651010

18. Habtewold TD, Mohammed SH, Endalamaw A, et al. Breast and complementary feeding in Ethiopia: new national evidence from systematic review and meta-analyses of studies in the past 10 years. *Eur. J. Nutr*. 2019;58(7):2565-2595. doi:10.1007/s00394-018-1817-8

19. Jama NA, Wilford A, Masango Z, et al. Enablers and barriers to success among mothers planning to exclusively breastfeed for six months: A qualitative prospective cohort study in KwaZulu-Natal, South Africa. *Int. Breastfeed. J*. 2017;12:43. doi:10.1186/s13006-017-0135-8

20. Mohamed MJ, Ochola S, Owino VO. A Qualitative Exploration of the Determinants of Exclusive Breastfeeding (EBF) Practices in Wajir County, Kenya. *Int Breastfeed J*. 2020;15:44. doi:10.1186/s13006-020-00284-x

21. Arts M, Geelhoed D, De Schacht C, Prosser W, Alons C, Pedro A. Knowledge, Beliefs, and Practices Regarding Exclusive Breastfeeding of Infants Younger Than 6 Months in Mozambique: A Qualitative Study. *J Hum Lact*. 2011;27(1):25-32. doi:10.1177/0890334410390039

22. Engebretsen IM, Moland KM, Nankunda J, Karamagi CA, Tylleskär T, Tumwine JK. Gendered perceptions on infant feeding in Eastern Uganda: continued need for exclusive breastfeeding support. *Int Breastfeed J*. 2010;5:13. doi:10.1186/1746-4358-5-13

23. Dearden KA, Quan LN, Do M, et al. Work outside the home is the primary barrier to exclusive breastfeeding in rural Viet Nam: insights from mothers who exclusively breastfed and worked. *Food Nutr. Bull*. 2002;23(4 Suppl):99-106. https://doi.org/10.1177/15648265020234S214

24. Gebremariam KT, Zelenko O, Hadush Z, Mulugeta A, Gallegos D. Exploring the challenges and opportunities towards optimal breastfeeding in Ethiopia: a formative qualitative study. *Int Breastfeed J*. 2020;15(1):20. doi:10.1186/s13006-020-00265-0

25. Kavle JA, LaCroix E, Dau H, Engmann C. Addressing barriers to exclusive breast-feeding in low- and middle-income countries: a systematic review and programmatic implications. *Public Health Nutr*. 2017;20(17):3120-3134. doi:10.1017/S1368980017002531

26. Cherop CE, Keverenge-Ettyang AG, Mbagaya GM. Barriers to exclusive breastfeeding among infants aged 0-6 months in Eldoret municipality, Kenya. *East Afr. J Public Health*. 2009;6(1):69-72. doi:10.4314/eajph.v6i1.45752

27. Otoo GE, Lartey AA, Pérez-Escamilla R. Perceived incentives and barriers to exclusive breastfeeding among periurban Ghanaian women. *J Hum Lact*. 2009;25(1):34-41. doi:10.1177/0890334408325072

28. Horwood C, Surie A, Haskins L, et al. Attitudes and perceptions about breastfeeding among female and male informal workers in India and South Africa. *BMC Public Health*. 2020;20:875. doi:10.1186/s12889-020-09013-9

29. Handayani L, Dewi MK, Munira L. Barrier and facilitator on breastfeeding education and promotion: A literature review. *IJPHS*. 2020;9(4):320. doi:10.11591/ijphs.v9i4.20495

30. Ngongalah L, Rawlings NN, Emerson W, Titilope O, Sharon M. Infant Feeding Perceptions and Barriers to Exclusive Breastfeeding in Urban and Rural Cameroon. *IJCHN*. 2018;7(4):201-209.

31. Kimani-Murage EW, Wekesah F, Wanjohi M, et al. Factors affecting actualisation of the WHO breastfeeding recommendations in urban poor settings in Kenya. *Matern Child Nutr*. 2015;11(3):314-332. doi:10.1111/mcn.12161

32. Rollins NC, Bhandari N, Hajeebhoy N, et al. Why invest, and what it will take to improve breastfeeding practices? *The Lancet*. 2016;387(10017):491-504. doi:10.1016/S0140-6736(15)01044-2

33. Matare CR, Craig HC, Martin SL, et al. Barriers and Opportunities for Improved Exclusive Breast-Feeding Practices in Tanzania: Household Trials With Mothers and Fathers. *Food Nutr Bull*. 2019;40(3):308-325. doi:10.1177/0379572119841961

34. Mgongo M, Hussein TH, Stray-Pedersen B, Vangen S, Msuya SE, Wandel M. "We give water or porridge, but we don't really know what the child wants:" a qualitative study on women's perceptions and practises regarding exclusive breastfeeding in Kilimanjaro region, Tanzania. *BMC Pregnancy Childbirth*. 2018;18(1):323. doi:10.1186/s12884-018-1962-3

35. Mlay RS, Keddy B, Stern PN. Demands out of context: Tanzanian women combining exclusive breastfeeding with employment. *Health Care Women Int*. 2004;25(3):242-254. doi:10.1080/07399330490272741

36. Nyaloko M, Lubbe W, Minnie K. Perceptions of Mothers and Community Members Regarding Breastfeeding in Public Spaces in Alexandra, Gauteng Province, South Africa. *TOPHJ*. 2020;13:582-594. doi:10.2174/1874944502013010582

37. Hameed IR, Alnuaimi AS, Hameed MR. Factors Associated with Non-Exclusive Breastfeeding A-Cross Sectional Kap Study. *Int. J. of Multidisciplinary and Current research*. 2020;8:712-719. https://doi.org/10.14741/ijmcr/v.8.5.4

38. Trafford Z, Jewett S, Swartz A, et al. Reported infant feeding practices and contextual influences on breastfeeding: qualitative interviews with women registered to MomConnect in three South African provinces. *Int Breastfeed J*. 2020;15:81. doi:10.1186/s13006-020-00315-7

39. Mbobo G, Rath S, Bosman SJ, Srinivas S. Addressing Childhood Overweight and Obesity: A Focus on India and South Africa. *IJOPP*. 2016;9(2):95-101. doi:10.5530/ijopp.9.2.6

40. Bylaska-Davies P. Exploring the Effect of Mass Media on Perceptions of Infant Feeding. *Health Care for Women Int*. 2015;36(9):1056-1070. doi:10.1080/07399332.2015.1005304

41. Habtewold TD, Mohammed SH, Endalamaw A, et al. Higher educational and economic status are key factors for the timely initiation of breastfeeding in Ethiopia: A review and meta-analysis. *Acta Paediatr*. 2020;109(11):2208-2218. doi:10.1111/apa.15278

42. Aloysius M, Jamaludin SS bt S, Aloysius M. A Qualitative Study on Public Breastfeeding: What's Appropriate and Inappropriate in Penang, Malaysia? *J Comput. Theor. Nanosci*. 2017;23(4):3185-3189. doi:10.1166/asl.2017.7705

43. Prendergast E, James J. Engaging mothers: Breastfeeding experiences recounted (EMBER). A pilot study. *Breastfeed Rev*. 2016;24(2):11-19.

44. Komodiki E, Kontogeorgou A, Papastavrou M, et al. Breastfeeding in Public: A Global Review of Different Attitudes towards It. *JPNC*. 2014;1(6). doi:10.15406/jpnc.2014.01.00040

45. Bader LR, Ward J, Fouts HN, Jaekel J. Infant Care Practices among Resettled Refugee Mothers from East and Central Africa. *Children*. 2020;7(6):63. doi:10.3390/children7060063

46. Gallegos D, Vicca N, Streiner S. Breastfeeding beliefs and practices of African women living in Brisbane and Perth, Australia: Breastfeeding beliefs and practices. *Matern Child Nutr*. 2015;11(4):727-736. doi:10.1111/mcn.12034

47. Morris C, Schofield P, Hirst C. Exploration of the Factors Influencing Attitudes to Breastfeeding in Public. *J Hum Lact*. 2020;36(4):776-788. doi:10.1177/0890334419878119

48. Russell K, Ali A. Public Attitudes Toward Breastfeeding in Public Places in Ottawa, Canada. *J Hum Lact*. 2017;33(2):401-408. doi:10.1177/0890334417695203

49. Huang Y, Osborne D, Sibley CG. Public support and sociodemographic correlates of public breastfeeding support in New Zealand. *NZMJ*. 2018;131(1487):44-53. https://www.nzma.org.nz/journal-articles/public-support-and-sociodemographic-correlates-of-public-breastfeeding-support-in-new-zealand. Accessed February 28, 2021.

50. Olejnik A, Adamczewska A, Kossakowska K. Factors affecting attitude towards breastfeeding in public: a cross-sectional web-based study on Polish women. *J Public Health (Berl)*. 2020. doi:10.1007/s10389-020-01320-0

51. Jama NA, Wilford A, Haskins L, Coutsoudis A, Spies L, Horwood C. Autonomy and infant feeding decision-making among teenage mothers in a rural and urban setting in KwaZulu-Natal, South Africa. *BMC Pregnancy Childbirth*. 2018;18(1):52. doi:10.1186/s12884-018-1675-7

52. Aghdas K, Talat K, Sepideh B. Effect of immediate and continuous mother-infant skin-to-skin contact on breastfeeding self-efficacy of primiparous women: a randomised control trial. *Women Birth*. 2014;27(1):37-40. doi:10.1016/j.wombi.2013.09.004

53. Dennis CL. Theoretical underpinnings of breastfeeding confidence: a self-efficacy framework. *J Hum Lact*. 1999;15(3):195-201. doi:10.1177/089033449901500303

54. Bandura A. Self-efficacy: Toward a unifying theory of behavioral change. *Advances in Behaviour Research and Therapy*. 1978;1(4):139-161. doi:10.1016/0146-6402(78)90002-4

55. Gubbins JK. Some Observations on the Evil Eye in Modern Greece. *Folklore*. 1946;57(4):195-198. doi:10.1080/0015587X.1946.9717836

56. Manzakoglu BT, Berkan ST. Evil Eye Belief in Turkish Culture: Myth of Evil Eye Bead. *TOJDAC*. 2016;6(2):193-204. doi:10.7456/10602100/013

57. Qamar AH. Belief in the Evil Eye and Early Childcare in Rural Punjab, Pakistan. *Asian Ethnol*. 2016;75(2):397-418. https://www.jstor.org/stable/asianeth.75.2.397. Accessed February 28, 2021.

58. Burleigh E, Dardano C, Cruz JR. Colors, humors and evil eye: Indigenous classification and treatment of childhood diarrhea in highland Guatemala. *Med. Anthropol*. 1990;12(4):419-441. doi:10.1080/01459740.1990.9966035

59. Galt AH. the evil eye as synthetic image and its meanings on the Island of Pantelleria, Italy. *Am. Ethnol*. 1982;9(4):664-681. doi:10.1525/ae.1982.9.4.02a00030

60. Bell AJ, Arku Z, Bakari A, et al. 'This sickness is not hospital sickness': a qualitative study of the evil eye as a source of neonatal illness in Ghana. *J Biosoc Sci*. 2020;52(2):159-167. doi:10.1017/S0021932019000312

61. Bakari A, Bell AJ, Oppong S, Woodford J, Kaselitz E, Moyer CA. ‘ *Asram* is really killing us here’: attribution for pregnancy losses and newborn mortality in the Ashanti Region of Ghana. *J Biosoc Sci*. 2020:1-11. doi:10.1017/S0021932020000322

62. Bader LR, Fouts HN. Cultural Models of Infant Emotions and Needs Among the Gamo People of Southern Ethiopia. *Infant Ment Health J*. 2018;39(5):497-510. doi:10.1002/imhj.21734

63. Tareke KG, Lemu YK, Yidenekal SA, Feyissa GT. Community’s perception, experiences and health seeking behavior towards newborn illnesses in Debre Libanos District, North Shoa, Oromia, Ethiopia: Qualitative study. Tu W-J, ed. *PLoS ONE*. 2020;15(1):e0227542. doi:10.1371/journal.pone.0227542

64. Warren C. Care of the newborn: Community perceptions and health seeking behavior. *Ethiop. J. Health Dev*. 2010;24(1):110-114. doi:10.4314/ejhd.v24i1.62952

65. Wanjohi M, Griffiths P, Wekesah F, et al. Sociocultural factors influencing breastfeeding practices in two slums in Nairobi, Kenya. *Int. Breastfeed. J*. 2017;12(1). doi:10.1186/s13006-016-0092-7

66. Matsuyama A, Karama M, Tanaka J, Kaneko S. Perceptions of caregivers about health and nutritional problems and feeding practices of infants: a qualitative study on exclusive breast-feeding in Kwale, Kenya. *BMC Public Health*. 2013;13:525. doi:10.1186/1471-2458-13-525

67. Odwe G, Ndwiga C, Okondo C, Sripad P, Abuya T, Warren CE. Exploring communities’ perceptions of the etiology of illnesses in newborns and young infants 0–59 days old in 4 counties in Kenya. *PLoS ONE*. 2020;15(11):e0240852. doi:10.1371/journal.pone.0240852

68. Merriam-Webster. Evil Eye. Merriam-Webster website. https://www.merriam-webster.com/dictionary/evil+eye. Accessed February 28, 2021.

69. Dillip A, Alba S, Mshana C, et al. Acceptability – a neglected dimension of access to health care: findings from a study on childhood convulsions in rural Tanzania. *BMC Health Serv Res*. 2012;12:113. doi:10.1186/1472-6963-12-113

70. Kaaya SF, Mbwambo JK, Smith Fawzi MC, Van den Borne H, Schaalma H, Leshabari MT. Understanding women’s experiences of distress during pregnancy in Dar es Salaam, Tanzania. *Tanzania J Hlth Res*. 2010;12(1):36-46. doi:10.4314/thrb.v12i1.56277

71. Ringsted FM, Bygbjerg IC, Samuelsen H. Early home-based recognition of anaemia via general danger signs, in young children, in a malaria endemic community in north-east Tanzania. *Malar J*. 2006;5:111. doi:10.1186/1475-2875-5-111

72. Thairu L, Pelto G. Newborn care practices in Pemba Island (Tanzania) and their implications for newborn health and survival. *Matern. Child Nutr*. 2008;4(3):194-208. doi:10.1111/j.1740-8709.2008.00135.x

73. Horwood C, Haskins L, Alfers L, Masango-Muzindutsi Z, Dobson R, Rollins N. A descriptive study to explore working conditions and childcare practices among informal women workers in KwaZulu-Natal, South Africa: identifying opportunities to support childcare for mothers in informal work. *BMC pediatrics*. 2019;19(1):382. doi:10.1186/s12887-019-1737-7

74. Nabunya P, Mubeezi R, Awor P. Prevalence of exclusive breastfeeding among mothers in the informal sector, Kampala Uganda. *PLOS ONE*. 2020;15(9):e0239062. doi:10.1371/journal.pone.0239062

75. Stumbitz B, Lewis S, Kyei AA, Lyon F. Maternity protection in formal and informal economy workplaces: The case of Ghana. *World Dev*. 2018;110:373-384. doi:10.1016/j.worlddev.2018.06.007

76. Coomson JB, Aryeetey R. Perception and practice of breastfeeding in public in an urban community in Accra, Ghana. *Int Breastfeed J*. 2018;13:18. doi:10.1186/s13006-018-0161-1

77. Magnusson BM, Thackeray CR, Van Wagenen SA, Davis SF, Richards R, Merrill RM. Perceptions of Public Breastfeeding Images and Their Association With Breastfeeding Knowledge and Attitudes Among an Internet Panel of Men Ages 21–44 in the United States. *J Hum Lact*. 2017;33(1):157-164. doi:10.1177/0890334416682002

78. Hussin A, Ishak M, Wahid NA. The Perceptions and Attitude towards Breastfeeding. *IJCWED*. 2018;5:242-246. https://www.ijcwed.com/wp-content/uploads/2018/11/IJCWED5_7.pdf. Accessed February 28, 2021.

79. Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) [Tanzania Mainland], Ministry of Health (MoH) [Zanzibar], National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), and ICF. Tanzania Demographic and Health Survey and Health Survey and Malaria Indicator Survey (THDS-MIS) 2015-16. Dar es Salaam, Tanzania, and Rockville, Maryland, USA: MoHCDGEC, MoH, NBS, OCGS, and ICF; 2016.

80. World Data Atlas (Knoema): United Republic of Tanzania. Kilimanjaro Region. Knoema. https://knoema.com//atlas/United-Republic-of-Tanzania/Kilimanjaro-Region. Accessed February 28, 2021.

81. Moshi Municipal Council. Statistics. Moshi Municipal Council website. http://www.moshimc.go.tz/statistics. Accessed April 6, 2021.

82. International Labour Organization. Women and Men in the Informal Economy: A Statistical Picture (Third edition). Geneva, Switzerland: International Labour Office; 2018.

83. Jahanpour O, Msuya SE, Todd J, Stray-Pedersen B, Mgongo M. Increasing trend of exclusive breastfeeding over 12 years period (2002-2014) among women in Moshi, Tanzania. *BMC Pregnancy Childbirth*. 2018;18:471. doi:10.1186/s12884-018-2104-7

84. Corbin J, Strauss A. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. 3rd ed. Thousand Oaks, CA: SAGE Publications, Inc.; 2008. doi:10.4135/9781452230153

85. National Health Service. Your breastfeeding questions answered. National Health Service website. https://www.nhs.uk/conditions/baby/breastfeeding-and-bottle-feeding/breastfeeding/your-questions-answered/. Reviewed March 5, 2020. Accessed April 16, 2021.

86. Johns Hopkins Medicine. Breastfeeding and Delayed Milk Production. Johns Hopkins Medicine website. https://www.hopkinsmedicine.org/health/conditions-and-diseases/breastfeeding-and-delayed-milk-production. Accessed April 16, 2021.

87. Radwan H, Sapsford R. Maternal Perceptions and Views About Breastfeeding Practices Among Emirati Mothers. *Food Nutr Bull*. 2016;37(1):73-84. doi:10.1177/0379572115624289

88. Feierman S. Therapy as a system-in-action in Northeastern Tanzania. *Soc. Sci. Med*. 1981;15B(3):353-360. doi:10.1016/0160-7987(81)90060-0

89. Foster D, Vilendrer S. Two treatments, one disease: childhood malaria management in Tanga, Tanzania. *Malar J*. 2009;8:240. doi:10.1186/1475-2875-8-240

90. Roggeveen Y, Birks L, Kats J van, et al. Low utilization of skilled birth attendants in Ngorongoro Conservation Area, Tanzania: A complex reality requiring action. *Health*. 2013;05(07):71-83. doi:10.4236/health.2013.57A4011

91. Mabilia M. The cultural context of childhood diarrhoea among Gogo infants. *Anthropol Med*. 2000;7(2):191-208. doi:10.1080/713650590

92. Mabilia M. Beliefs and practices in infant feeding among the Wagogo of Chigongwe (Dodoma rural district), Tanzania. I. Breastfeeding. *Ecol Food Nutr*. 1996;35(3):195-207. doi:10.1080/03670244.1996.9991489

93. Kayombo EJ. Traditional Methods of Protecting the Infant and Child Illness/Disease Among the Wazigua at Mvomero Ward, Morogoro, Region, Tanzania. *Altern Integ Med*. 2013;02(01):103. doi:10.4172/2327-5162.1000103

94. Dondi NN. Literature Review on Maternal, Infant, and Young Child Nutrition Prepared for the Message and Materials Development Workshop in Ethiopia. Addis Ababa, Ethiopia: USAID's Infant and Young Child Nutrition Project (IYCN); January 2011.

95. Hauck YL, Kuliukas L, Gallagher L, Brady V, Dykes C, Rubertsson C. Helpful and challenging aspects of breastfeeding in public for women living in Australia, Ireland and Sweden: a cross-sectional study. *Int Breastfeed J*. 2020;15(1):38. doi:10.1186/s13006-020-00281-0

96. Khasawneh W, Kheirallah K, Mazin M, Abdulnabi S. Knowledge, attitude, motivation and planning of breastfeeding: a cross-sectional study among Jordanian women. *Int Breastfeed J*. 2020;15(1):60. doi:10.1186/s13006-020-00303-x

97. Buccini G, Perez-Escamilla R, Kavle JA, Picolo M, Barros I, Dillaway CH. Addressing Barriers to Exclusive Breastfeeding in Nampula, Mozambique: Opportunities to Strengthen Counseling and Use of Job Aids: Technical Report. Washington, DC: USAID's Maternal and Child Survival Program (MCSP); July 2019.

98. Kennedy B, Rehman M, Johnson W, Magee M, Leonard R, Katzmarzyk P. Healthcare Providers versus Patients' Understanding of Health Beliefs and Values. *Patient experience journal*. 2017;4:29-37. doi:10.35680/2372-0247.1237

99. Marsden A, Abayomi J. Attitudes of employees working in public places toward breastfeeding. *Br. J. Midwifery*. 2012;20(4):271-277. doi:10.12968/bjom.2012.20.4.271

100. DeMaria AL, Ramos-Ortiz J, Basile K. Breastfeeding trends, influences, and perceptions among Italian women: a qualitative study. *Int. J. Qual. Study. Health Well-being*. 2020;15(1):1734275. doi:10.1080/17482631.2020.1734275

101. Vieth A, Woodrow J, Murphy-Goodridge J, O'Neil C, Roebothan B. The Ability of Posters to Enhance the Comfort Level with Breastfeeding in a Public Venue in Rural Newfoundland and Labrador. *J Hum Lact*. 2016;32(1):174-181. doi:10.1177/0890334415593944